PHOTOGRAPHY COURSE

Suggestions for Home Work

8. If your camera is provided with a ground glass, practice focusing by parallax. First study paragraph 85 in textbook.

The use of stops.

9. Select a subject having more or less prominent objects from 6 to 50 feet from the camera. Have the sun at one side of the camera and make the following exposures with the camera on a steady tripod;

(1) Focus on 6 feet; use largest stop.
(2) Focus on 6 feet; use stop f-16.
(3) Focus on 25 feet; use largest stop.
(4) Focus on 25 feet; use stop f-16.
(5) Focus on 100 feet; use largest stop.
(6) Focus on 100 feet; use stop f-16.

Note effect of size of stop and distance of camera from object on the depth of focus.

10. Place a person or other object about 4 feet from an undesirable background. With the camera 6 feet from the object, focus sharply and make two exposures, one with the lens wide open and the other at f-16. Note the effect of size of stop on the definition of the background.

Effect of focal length of lens on the depth of fucus.

11. Photograph a general view with a lens of rather long focal length and then make another exposure from the same point of view with a lens of appreciably shorter focal length. Use stop f-8 in both cases. This may be repeated with f-16.

If time permits, make two more exposures, using the same size of stop in each lens. To do this it is suggested that the front element of each lens be removed and that the diameter of each stop be carefully measured with a triangular piece of paper. What do these experiments teach you about depth of focus?

Keep a complete record of every exposure and later add essential information covering the making of the negative and prints. This is important.

The use of the rising front.

12. Select some tall subject with plenty of foreground. Set the camera with the film or plate plumb. Then take one picture without using the rising front; then another after raising the front to a suitable height. What are the advantages of a rising front?

Normally developing underexposures, correct exposures, and overexposures.

13. Take from three to six (preferably 6) photographs of the same subject, varying the exposures so as to make sure of having under, correct, and over

exposure. See exposure table on page 74 and Paragraph 234 d for suggestions on details.

Varying the length of development.

14. Take three to six correctly exposed photographs of the same subject under exactly the same conditions. See Paragraph 234 c, for suggestions on development.

Varying the length of development of underexposures and overexposures.

15. Take four photographs of the same subject, underexposing two and overexposing two. Develop in accordance with instructions in Paragraph 234 e.

Be sure to make a complete record of the exposure and development data in exercises 13, 14, and 15. Make a most careful study of all of these negatives in connection with review of Paragraphs 218-219. Figures 45 and 46 merit special study.

PHOTOGRAPHY COURSE

Suggestions for Home Work

Classification of negatives.

16. Study Fig. 45 on p. 164 and the table on p. 170; then classify the negatives resulting from Exercises 13-15 in accordance with the scheme shown in Fig. 45. From these select nine representative negatives as in Fig. 45 for use in the following exercises. Learn how to judge detail, density, and contrast in your negatives. It is very important that you learn how to classify negatives on basis of contrast.

Making preparations for printing.

Provide yourself with enough Azo or similar paper of one grade in about 4 degrees of contrast (Numbers 1, 2, 3, and 4 suggested). Do not fail to get a thermometer and use it. Also provide an ample supply of suitable developer for the paper to be used. Aim to keep the temperature of the developer as near 68 or 70 degrees Fahr. as possible and avoid overworking the developer-preferably use only a small quantity of solution and develop only a few prints in it.

Do not waste paper. Use test strips with each negative. Read Par. 244g. Adjust your exposures so that print will come up gradually and be fully developed in the length of time recommended by the manufacturer of the paper. Mr. Cross says that the time given in printed instructions is the minimum so a little longer time may be used. But whatever time you select, stick to it and adjust your exposures to it. Always develop your test strips and prints for this standard time in fresh standard developer at the standard temperature. The acid fixing bath should be fresh and cool. If a novice at print making, follow instruction procedure given in Par. 253a-b.

Suiting paper to negative.

17. Designate your nine representative negatives as A, B, etc., as in Fig. 45, then proceed as follows. Prepare tests strips from each of Azo 1, 2, 3,

and 4, and write on back of each strip the number of the paper. Take one strip of each of 1, 2, 3, and 4 and make test on negative E. Develop all four strips at same time in same developer for the standard time. Rinse and put strips into stop bath or fixing bath for a short time, then examine carefully and make record of the best exposure time for each paper tested. Note the ratio of exposure for 1, 2, 3, and 4 and make use of this when making test exposures on the other negatives.

Now take a full sheet of No. 1 paper and make a print from negative E. Repeat using papers 2, 3, and 4. If this is successful, take negatives D, F, G, H, C, and B in succession and proceed as in the case of negative E, except that it will not be necessary to use other than No. 1 paper in making a test strip. Be very careful to write complete data on the back of each print, but do not use an indelible pencil.

When the prints are dry, sort them and determine which degree of contrast gave the best print with each of the 9 types of negatives. Check by having others examine your prints. Now tabulate your results. Clearly, if paper of a given grade of contrast gives the best prints with certain negatives, then these negatives must have about the same degree of contrast. Select such groups of negatives and compare them with one another of the same group and with negatives of the other groups. When this is understood try to classify some of your previously made negatives on basis of contrast.

Varying the exposure in printing.

18. Follow instructions in Par. 253 d.

Varying the length of development in printing.

19. Follow instructions in Par. 253 e.

Varying the temperature of the developer in printing.

20. Follow instructions in Par. 253 f.

Adding potassium bromide to the developer.

21. Follow instruction in Par. 253 m.

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Beck, Conrad
The Microscope, Part II
An Advanced handbook. R. & J. Beck, Ltd., London, 1924.
The following chapters are particularly recommended:
Chapter 3. Aperture and Resolution
4. The Photometry of the Microscope
5. Glare and Flooding
6. Notes on Illumination and Technique

Belling, John
The Use of the Microscope. McGraw-Hill, 1930
An excellent book on critical microscopy, with a long bibliography of references

Coles, Alfred C.
Critical Microscopy. Van Nostrand, New York, 1922.
Contains an excellent discussion of methods of correcting objective for cover glass thickness and condenser for slide thickness.

Cross, M. I., and Cole, M. J.
Modern Microscopy. Ballier, Tindall & Cox, London, 1922.

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The Microscope
An introduction to microscopic methods and to histology. Comstock Publishing Co., Ithaca, N. Y., 1925 (Newer editions now available).

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Photomicrography

Barnard, J. E., and Welch, F. E.
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An introduction to photography with the microscope with a section on motion photomicrography. 12th edition, 1932. 50 cents. Contains a bibliography of papers on motion photomicrography.

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Trivelli, A. P. H., and Foster, L. V.
Photomicrography with 365 mm Mercury Arc Line. Journal of the Optical Society of America, vol. 21, p. 124, Feb. 1931.

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Winchell, Alexander N.
Elements of Optical Mineralogy, Part I. Wiley & Sons, 1928.